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**Notice of Allowability**

Application No.

10/537,626

Examiner

Brian M. Healy

Applicant(s)

XU ET AL.

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the application filed 09/07/2006.
2. ☒ The allowed claim(s) is/are 1-28.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All   b) ☐ Some\*   c) ☐ None   of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

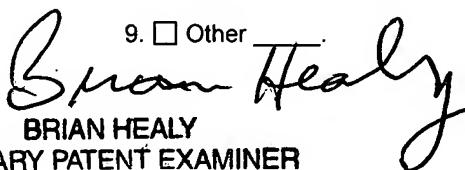
\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date 09072006
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

  
**BRIAN HEALY**  
PRIMARY PATENT EXAMINER

**DETAILED ACTION*****Allowable Subject Matter***

The following is an examiner's statement of reasons for allowance: The closest prior art of record, i.e. Wickham, U.S.P. No. 5,852,687 teaches (Figs.1-4) an optical time delay device comprising: an input/output optical waveguide beamsplitter 38 which is placed upon a planar waveguide that includes a spiral waveguide 44 that also includes plural Bragg gratings 48,50 which causes different wavelengths to have different time delays.

Neither Wickham 687' of any of the references of record teaches or suggests an optical delay line device comprising: input/output optics coupled to an optical source along a delay line beam path with the delay line beam path being tangent to an edge of an evolute circle of the optical delay line and a curved mirror with an inner reflective surface having a curvature based on an involute curve calculated from the evolute circle with the curved mirror being centered on an axis of the evolute circle to retro-reflect light traveling along the delay line beam path and where the input/output optics and/or the curved mirror rotates (rotation via a predetermined function) about the axis of the evolute circle to controllably vary the delay of the optical delay line. These limitations are recited in independent claims 1, 16, 25,27 and 28. Dependent claims 2-15,17-24 and 26 includes the limitations of at least one of the aforementioned independent claims as well as other additional limitations. See the dependent claims for these additional limitations which includes additional mirrors, beam splitters, optical

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fibers , controllable rotation stage, a processor coupled to the rotation stage and planar waveguides.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

The following references are also cited by the Examiner as being pertinent prior art: Xu et. al., U.S. Patent Application Publication No. US 2007/0009207A1 (Note entire reference.), Herriott et. al., U.S.P. No. 3,437,954 (Figs.1-4), Davies et. al., U.S.P. No. 5,066,088 (Figs.1-6), Olsen, U.S.P. No. 7,043,108 (Figs.1-5), and Kaltschmidt, U.S.P. No. 5,109,446 (Figs.1-3).

A copy of PTO-1449 has been included in this office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian M. Healy whose telephone number is (571)272-2347. The examiner can normally be reached on Compressed schedule Mon-Fri. 6AM-5PM

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571)272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**Brian M. Healy**  
**Primary Examiner**  
**Art Unit 2883**

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A handwritten signature in black ink, appearing to read "Brian Healy", with a stylized flourish at the end.

**BRIAN HEALY**  
**PRIMARY PATENT EXAMINER**